

### **REMARKS**

Applicants respectfully request reconsideration of the application in view of the amendments above and the remarks below. Claims 26-40 have been canceled and claims 41-47 have been added by way of the foregoing amendments, such that claims 6-10 and 41-47 are currently pending in the application. Claims 6, 41, and 47 are independent claims.

### **Examiner Interview**

Applicants gratefully acknowledge the courtesies extended by Examiner Wu to the undersigned representative during a personal interview on September 6, 2004. During the interview, independent claims 6, 26 and 38, and the *Holmes* and *Burdea* references were discussed. The Applicants' representative emphasized differences between the independent claims and the *Holmes* and *Burdea* references. Specifically, Applicants' representative emphasized the difference between the air-actuated membrane of *Holmes* and the mechanically actuated or tendon-actuated deformable member of independent claim 6.

### **The Claims are Patentable over *Holmes***

Claims 6-10, 26-28, and 33-40 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,239,784 to Holmes (hereinafter "*Holmes*"). Claims 26-28 and 33-40 have been canceled by way of the foregoing amendment and, therefore, the rejection of those claims has been rendered moot. Applicants respectfully traverse the rejection of claims 6-10 for the reasons set forth below.

Independent claim 6 recites an apparatus, including a deformable member and a *tendon*, which is configured to ***displace a first end of the deformable member relative to the second end of the deformable member***. The deformable member has a first end, a second end, and an intermediate portion. The intermediate portion of the deformable member has a contact side and a non-contact side. The contact side of the intermediate portion of the deformable member is configured to output a haptic sensation. The non-contact side of the intermediate portion is disposed between the contact side of the intermediate portion and the tendon.

*Holmes* is directed to an "exo-skeletal haptic computer human/computer interface device." Figure 1 of *Holmes*, for example, shows a glove and other components of a virtual

reality system. The cross-sectional view of one position (i.e., a ring member 13/14 configured to fit around a finger) of the glove shown in Figure 1 of *Holmes* can be seen in detail in Figure 2. As shown in Figure 2, a membrane 23 is provided next to a cavity 21, such that when gas is provided under pressure via the passageway 20, the membrane 23 bulges (i.e., is deformed) and contacts the finger or thumb within the ring member 13/14 to provide a tactile sensation.

Unlike independent claim 6, however, *Holmes* does not disclose or suggest the use of a *tendon* configured to displace a first end of a deformable member relative to a second end of the deformable member. In fact, *Holmes* does not disclose a tendon at all. On page 2 of the Office Action, the Examiner has pointed to the cavity 21 of *Holmes* as allegedly disclosing the claimed tendon. This characterization is inapposite, however, because the cavity 21 in *Holmes* (sometimes referred to as a “bore”) is an empty space, and cannot possibly be construed as a tendon.

Several examples of a tendon are given in the Specification. For example, “the tendon 250 may be a flexible cable or wire, sufficiently rigid in tension to transmit the pulling force from the actuating mechanism 255 to the second end 245 of the deformable member 230 but sufficiently flexible to pass from the first end 235 to the actuating mechanism 255 along a non-linear path.” (Specification at 15.) The Specification also states, for example, that “the tendon 250 may comprise Dacron™ or Dacron™ slidably disposed in one or more fixed tubular casings...” (Specification at 15.)

It is clear that *Holmes* generally, and the cavity 21 of *Holmes* specifically, fails to disclose or suggest the claimed tendon, as that term is used in the context of the Specification. For example, *Holmes* fails to disclose or suggest “flexible cable or wire,” or any equivalent thereof.

Moreover, *Holmes* fails to disclose or suggest any component configured to *displace a first end of the deformable member relative to the second end of the deformable member*. The Examiner has pointed to the membrane 23 of *Holmes* as disclosing the deformable member. *Holmes* does not, however, disclose that one end of the membrane can be displaced relative to the other end. Rather, *Holmes* discloses that “the membrane 23 is *fixed* ... to the inner part 17 ...” (Column 5, lines 22-23, emphasis added.) Indeed, for the “elastically deformable” membrane 23 of *Holmes* to properly deform and return to its original position by simply

changing the air pressure within the cavity 21, its edges *must* remain *fixed*, rather than being displaced.

Accordingly, for at least these reasons, Applicants respectfully request that the rejection of independent claim 6 under 35 U.S.C. § 102 be withdrawn. Additionally, based at least on their dependence from independent claim 6, Applicants respectfully request that the rejection of claims 7-10 under 35 U.S.C. § 102 be withdrawn.

In addition, Applicants respectfully submit that newly added claims 41-47 are patentable over *Holmes*. For example, both independent claims 41 and 47 recite at least deformable member and an elongated member configured to displace the second end of the deformable member relative to the first end of the deformable member, which are not disclosed or suggested by *Holmes*.

#### **The Claims are Patentable over *Holmes* and *Burdea***

Claims 29-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Holmes* in view of U.S. Patent No. 5,354,162 to *Burdea et al.* (hereinafter “*Burdea*”).<sup>1</sup> Applicants respectfully submit that this rejection has been rendered moot as claims 29-32 were canceled by way of the foregoing amendments.

Additionally, Applicants submit that newly added claims 41-47 are patentable over the combination of *Holmes* and *Burdea* for the reasons discussed above, as *Burdea* fails to overcome the deficiencies of *Holmes* relative to these newly added claims.

#### **Conclusion**

All rejections having been addressed, Applicants respectfully submit that the present application is in condition for allowance, and earnestly solicit a Notice of Allowance, which is believed to be in order. Should the Examiner have any questions regarding this communication, or the application in general, he is invited to telephone the undersigned at 703-456-8108.

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<sup>1</sup> Applicants note that, although the Examiner has referred on page 5 of the Office Action to U.S. Patent No. 5,184,319 (“*Kramer*”), it appears that *Kramer* has not been applied by the Examiner. To the extent that the Examiner intended to apply *Kramer* in rejecting the claims, Applicants respectfully submit that it does not overcome the deficiencies of *Holmes*.

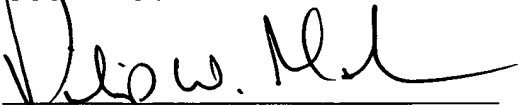
The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1283.

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